AMENDMENT TO SPECIFICATION

[Deleted material is struck-through and added material is underlined]

On page 1 line 1 of the Title, amend to include -- burning -- after "clean":

APPARATUS AND METHOD FOR PRODUCING A CLEAN **BURNING** COMBUSTIBLE GAS WITH LONG LIFE ELECTRODES AND MULTIPLE PLASMA-ARC-FLOWS

On page 1, between lines 2 (Title) and 3 (first line of written description), add -- BACKGROUND OF THE INVENTION --:

BACKGROUND OF THE INVENTION

On page 2, in the paragraph starting at line 1 and ending at line 12:

The combustible gases produced by an underliquid electric arc in the invention described herein are ~~called "magnegases."~~ **clean burning combustible gases.** It should be indicated that **these gases** ~~magnegases~~ generally vary with the liquid feedstock evidently because of differences in the atomic structures. For instance, the **gas** ~~magnegas~~ produced from water as liquid feedstock is dramatically different than the **gas** ~~magnegas~~ produced by using an oil-base liquid feedstock. This is due to the fact that the former is clean burning because it is essentially composed by hydrogen and carbon monoxide, while the later is highly polluting being essentially composed by heavy hydrocarbon due to the general absence of oxygen in oil.

On page 6, between the paragraph ending at line 19 and the paragraph starting at line 20, add a title to the section -- SUMMARY OF THE INVENTION --:

SUMMARY OF THE INVENTION

In the paragraph starting on page 9 at line 14 and ending on page 10 at line 6:

More specifically, the invention is an apparatus and method for processing a liquid feedstock into a clean burning **novel aforementioned gas** ~~**magnegas**~~ via a submerged electric arc between at least one pair of electrodes with long life, minimal power losses and multiple flows substantially through said submerged electric arc, comprising: a pressure resistant vessel; the pressure resistant vessel being essentially filled with a liquid feedstock; at least one pair of electrodes having copper holders extending into copper rods extending from inside the pressure resistant vessel to outside said pressure resistant vessel; said at least one pair of electrodes having a geometry which minimizes a distance between an electric arc between the electrodes and said copper holders for minimizing power loss in the delivery of the current to said electric arc, said electrodes having remaining dimensions essentially unrestricted for maximizing their life; means for delivering a current to said at least one pair of electrodes at least sufficient to create said submerged electric arc; motion means for acting on said copper rods for initiating, maintaining and optimizing said submerged electric arc; means for collecting the **gas** ~~**magnegas**~~ produced by the submerged electric arc; means for automatically refilling the liquid feedstock for facilitating uninterrupted long operation; and heat exchanger means for utilizing a heat produced by a thermochemical reaction caused by said submerged electric arc for maintaining a constant temperature.

On page 13, in the paragraph starting at line 18 and ending at line 26:

For enhancing the efficiency of production, three recirculating flows are anticipated by providing means for circulating a portion of the produced **clean burning combustible gas** ~~**magnegas**~~ exiting the pressurized vessel back into said vessel and substantially through said submerged electric arc; means for circulating said liquid feedstock substantially through said submerged electric arc; and means for circulating a liquid additive rich in a substance missing in the liquid feedstock substantially through said submerged electric arc.

On page 18, in the paragraph starting at line 20 and ending at line 32:

The combustible gas produced by the submerged electric arc~~, generically referred to as magnegas because of its magnecular structure described earlier,~~ exits vessel 1 through outlet 101 into high pressure pipes 108. The internal operating pressure is controlled by back-pressure regulator 102 which is usually set at the needed pressure, such as 70 psi when the combustible gas is used to power turbines. In one alternative embodiment, part of the produced combustible gas can be released from pipe 108 into a secondary high pressure pipe 103 and sent back into vessel 1 through outlet 106 using pump 104 to force the flow through the gap between the cathode 11 and anode 12. The flow rate may be controlled using valve 105.

On page 21 , in the paragraph starting at line 7 and ending at line 19:

It then follows that the recirculation of the combustible gas through the electric arc necessarily implies an increase of the heat produced per cf and acquired by the liquid feedstock, because of the formation of additional conventional molecules H_2 and CO whenever the combustible gas passes through the electric arc, with consequential release of additional heat. In particular, measurements have established that the recirculation of **the gas** ~~**magnegas**~~ through the electric arc doubles the amount of heat released by the related thermochemical reactions provided that the equipment is operated at least at 70 psi, with lesser increases at lower pressures and bigger increases at bigger pressures.

In the consecutive paragraphs staring on page 35 at line 12 and ending on page 36 at line 19:

Until now we have referred this invention to the use of generic "carbon or carbon-base electrodes." It should be indicated that the use of "coal-base electrodes," that is, electrodes produced via the extrusion of ordinary coal in powdery form plus a bonding agent, are preferable inasmuch as they imply the production of a **gas** ~~**magnegas**~~ with bigger energy content without appreciably affecting the environmental quality of their combustion exhaust.

This result is due to the fact that all substances in the electrode are vaporized, then ionized, thus becoming part of the electric arc plasma. Their volatile components then enter into the final composition of the **gas** ~~**magnegas**~~. It is then evident that the use of a coal-base electrode produces a combustible gas with bigger energy content than that of **gas** ~~**magnegas**~~ produced from pure graphite electrodes submerged within water as the same liquid feedstock. This is due to the presence in the coal-base electrodes of fossil substances absent in the pure graphite electrodes, which substances produce light hydrocarbons in **the gas** ~~**magnegas**~~, while such light hydrocarbons are absent in **the gas** ~~**magnegas**~~ produced from pure graphite electrodes submerged within water.

It should also be noted that the increase of energy content of the **gas** ~~**magnegas**~~ produced from coal-base electrodes does not imply appreciable losses in the environmental quality of the combustion exhaust. This is due to the fact that said hydrocarbons are light; they are present in **the gas** ~~**magnegas**~~ only in small percentages; and their actual chemical composition is parts of complete hydrocarbon molecules called dimers, bonded with other dimers, atoms and molecules.

Owing to the above features, another main objective of this invention is a new form of gasification of coal into a clean burning **gas** ~~**magnegas**~~ which objective is first achieved via the use of coal for the production of the consumable electrodes. A second way to achieve the same objective is to add coal slurry to the liquid feedstock and flow the mixture of liquid feedstock and coal slurry substantially through the electric arc. Besides producing said new means of coal gasification, this second method implies a reduced consumption of the coal-base electrodes.

On page 37, in the paragraph starting at line 18 and ending at line 26:

At any rate, the assumption via InfraRed Spectreometry of complete hydrocarbon molecules in magnegas is readily disproved by the combustion exhaust. For instance, the presence of 5% methane in **the produced gas using the apparatus herein described** ~~**magnegas**~~ should have 0.5 % of CO in the exhaust, because CO is indeed a by-product of the combustion of all hydrocarbons. This assumption is disproved by the evidence that, under perfect combustion, **the gas** ~~**magnegas**~~ produced with coal rod and water-base liquid feedstock have no CO at all.

On page 56, in the Abstract starting at line 2 and ending at line 18:

Apparatus and method for processing crude oil, or oil-base or water-base liquid waste into a clean burning **combustible** gas~~, called magnegas,~~ via a submerged electric arc between at least one pair of consumable electrodes, which have a geometry permitting the operation for at least one month prior to their replacement, are completely contained inside a pressurized vessel, and have copper holders that are placed at a minimal possible mutual distance so as to minimize the power loss in the propagation of electricity through the electrodes, while having the other dimensions essentially unrestricted to maximize life. The invention is complemented with three optional recirculating flows substantially through the electric arc: i) a flow of the produced combustible gas; ii) a flow of the liquid feedstock; and iii) a flow of a liquid additive rich in a substance missing in the liquid feedstock for the production of the combustible gas with desired features.